



Reduce Lead Time for Street Light Maintenance

Transportation & Storm Water Department's (TSW) Street Division is responsible for all the street lights in the City of San Diego. The City of San Diego has over 40,000 street lights in operation, plus 4,000 lights in parks, community ball fields, and other City facilities. The City also shares responsibility with Caltrans for lights on the freeway off/on ramps that intersect city streets. This black belt project used the Lean Six Sigma DMAIC (**define, measure, analyze, improve, and control**) methodology to achieve results in lead time, inventory management, and overall team morale.

Define. On average, Street Division takes 12-14 days to complete one service notification. This was attributed to numerous factors, such as: hard to identify problems up front so several crews can be assigned to one notification; crews are still using paper out on the field which are handed off to numerous staff (admin/supervisor); and lack inventory control. The goal was to reduce lead time for streetlight maintenance.

Measure. Using SAP's Work Order Management System, baseline data was collected to understand its current process flow.

Analyze. Some of the tools used to examine the root causes of waste and defects were: conducting a waste walk and ride along with field crews, creating control charts, and assessing inventory flow at the Chollas Yard.

Improve. After measuring and analyzing, improvements were validated and implemented, specifically:

- ***Kaizen Event 1:*** Applied 5S+1 to the Chollas Yard. This technique allowed the Electrical Team to sort, set in order, shine, standardize, and sustain a more organized workplace, resulting in 618 light fixtures ready for auction.
- ***Kaizen Event 2:*** Gained 37% administrative staff time per day by improving sorting of service notifications simply by creating separate bins for each service types.
- ***Design of Experiment (DOE):*** Studied four variables using historical data determined certain factors played a significant role in current processes, such as proactively planning for rainy seasons; forecasting workload by determining busy vs. idle months; or simply prioritizing service notifications types.

Control. A formal plan that guides the Electrical Team how to monitor their inputs/outputs (service notifications, inventory flow, and average lead time); how to react if processes goes out of control (review control plan); and how to use the measurement system in place (review quarterly using SAP Reports).

Overall project benefits include:

- Reduced lead time by 3 days
- Improved inventory flow at the Chollas Yard
- Resulted in \$11,000-15,000 of hard savings by improving admin's sorting process